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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,833	08/04/2005	Kenzi Suzuki	266364US0PCT	1064
22850 7590 08/08/2008 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER WOOD, ELIZABETH D				
ART UNIT 1793		PAPER NUMBER		
NOTIFICATION DATE 08/08/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/524,833

Applicant(s)

SUZUKI ET AL.

Examiner

Elizabeth D. Wood

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/86)
Paper No(s)/Mail Date 2/18/05, 6/3/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

Specification

The examiner has not checked the specification to the extent necessary to determine the presence of **all** possible minor errors (grammatical, typographical and idiomatic). Cooperation of the applicant(s) is requested in correcting any errors of which applicant(s) may become aware of in the specification, in the claims and in any future amendment(s) that applicant(s) may file.

Applicant(s) is also requested to complete the status of any copending applications referred to in the specification by their Attorney Docket Number or Application Serial Number, **if any**.

The status of the parent application(s) and/or any other application(s) cross-referenced to this application, **if any**, should be updated in a timely manner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a composition comprising a zeolite like material having the compositional formula as set forth in claim 3 of the instant application, or a zeolite like material obtained by the pyrolysis of hydrogarnet, does not reasonably provide enablement for the instant claims reciting a compound that includes or occludes active oxygen. The specification does not enable any person skilled in the art to which

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it pertains, or with which it is most nearly connected, to make and use the invention the invention commensurate in scope with these claims. Accordingly, the examiner purports that it would constitute undue experimentation to determine from the myriad "inorganic compounds" that occur naturally or can be synthesized which ones might function to encapsulate a peroxide anion and a superoxide anion.

There are eight factors considered by the Federal Circuit in the determination of undue experimentation, *In re Wands*, 8 USPQ2d 1400 (1988). These factors are: the nature of the invention, the breadth of the claims, the state of the prior art, the predictability or unpredictability of the art, the amount of direction or guidance presented, the presence or absence of working examples, the relative skill of those in the art, and the quantity of experimentation necessary. The examiner will discuss these factors as they apply to the instant invention.

Nature of the invention: The instant invention is drawn to a composition wherein the novelty resides in an inorganic compound that has an active oxygen developing mechanism and includes or occludes active oxygen, the inorganic compound including or occluding both a superoxide anion and a peroxide anion. The examiner construes these claims to mean an inorganic compound that has both a superoxide and a peroxide anion encapsulated within the pores of the structure.

Breadth of claims: The independent claim is extremely broad in that it merely recites an inorganic compound that has an active oxygen developing mechanism and includes or occludes superoxide and peroxide anion. Dependent claims 2-4 would not be subject to this rejection were they written in independent form. However, the

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independent claim would embrace so many potential inorganic compounds that there is no way the skilled artisan could possibly determine which ones could be treated to result in encapsulated anionic species. Applicant's own specification supports this conclusion; page 6 recites that "no inorganic compound that would include or occlude both a superoxide anion and a peroxide anion was known up to now". The examiner fails to comprehend, if no other compounds have been known capable of having this characteristic, and applicant has discovered a single one, how the skilled artisan could determine the metes and bounds of the claims reciting merely an "inorganic compound".

State of the prior art: Applicant's specification indicates that no inorganic that would include or occlude both a superoxide and peroxide anion is known at this time.

Predictability of the art: Catalyst compositions are unpredictable. For this reason it has long been held that the requirement with respect to the claims being commensurate with the enabling disclosure has long been recognized and considered particularly stringent in this area of technology.

Amount of guidance present: The instant disclosure provides guidance for making a compound having the formula of claim 3 by pyrolysis of hydrogarnet.

Presence of working examples: The application contains working examples directed to the pyrolysis of hydrogarnet to produce the inorganic compound set forth in claim 3 of the application.

Relative skill of those in the art: A person of ordinary skill in the art would recognize compounds that are *generally* held to be useful as catalysts for various reactions. However, it would confound the person of ordinary skill in the art as to what

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compounds might be treated to result in a zeolite type structure with both peroxide and superoxide anions encapsulated therein.

Quantity of experimentation necessary: This factor is crucial in areas of technology that are unpredictable, such as catalysis. The skilled artisan armed with the instant disclosure would know how to produce the specific compound of claim 3 from a hydrogarnet. However, there is no other guidance that would direct the skilled artisan in the production of any other type of zeolite-like inorganic material that would contain the anions claimed herein. The experimentation would be burdensome, if not impossible, to arrive at the herein claimed "inorganic compound" from any other source than a hydrogarnet.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese document 2002-003218 submitted by applicant.

The instantly claimed invention involves a compound containing both a superoxide anion and a peroxide anion. The compound disclosed by document JP 2002-003218 contains active oxygen seeds that can be either peroxide, superoxide, or both as claimed in the instant application. Accordingly, since the number of options is limited, and that claimed herein is specifically disclosed by the reference, selection of both oxygen species would have been obvious to the skilled artisan.

As the reference teaches that the compound can be used as a catalyst, the claims reciting catalysts, carriers, solid electrolytes and molded articles would have been obvious. See particularly the abstract.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the "Book of Abstracts and Recent Research Repots" submitted by applicant.

This reference discloses treating a catalyst material and preparation method mayenite to produce a material containing spheroid anion, combined with cobalt oxide catalyst. This material is employed as a catalyst for benzene oxidation.

Although the reference is silent regarding peroxide anion, it is considered that such would still have been present because the mayenite production step involves treatment of the preparation material at conditions of high heat treatment. Accordingly, it would naturally follow that both oxygen radicals would be present in the material. The entire report is relevant to the instant claims.

The foregoing rejection could be obviated by submission of a certified English translation of the priority document(s).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(a) as being clearly anticipated
“Proceedings of the 13th Annual Conference of the Japan Society of Waste
Management Experts” document submitted by applicant.

This document teaches thermally treating hydrogarnet to produce mayenite, and shows peroxide and superoxide species encapsulated in the zeolite like structure. This material is a solid, taught to have oxidative catalytic features, and therefore appears substantially identical to the material set forth in claims 1-10 of the instant application.

The foregoing rejection could be obviated by submission of a certified English translation of the priority document(s).

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the Fujita article, page 231, submitted by applicant.

The search report submitted by applicant indicates this article anticipates the instantly claimed invention. Treated hydrogarnet is disclosed as a catalyst for oxidation.

Conclusion

Applicants are advised that any evidence to be provided under 37 CFR 1.131 or 1.132 and any amendments to the claims and specification should be submitted prior to final rejection to be considered timely. It is anticipated that the next office action will be a final rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth D. Wood whose telephone number is 571-272-1377. The examiner can normally be reached on M-F, 5:30-2:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth D. Wood/
Primary Examiner, Art Unit 1793

/E. D. W./
Primary Examiner, Art Unit 1793